

REMARKS

As a preliminary matter, please make the following corrections to the Amendment submitted 9 October 2001 for this application. In the first sentence of footnote 1 on page 13, change "cancelled" to "was cancelled". In the last paragraph on page 15, change "53 - 56", both occurrences, to "54 - 56" in light of the fact that Claim 53 was cancelled in the 9 October 2001 Amendment. In the first paragraph on page 24, change "Claims 66" to "Claim 66".

In reviewing the 9 October 2001 Amendment, Applicants' attorney noted that the Amendment failed to explain why Claims 129 and 130 were not obvious under 35 USC 103(a) based on Jones et al, U.S. Patent 5,175,637 ("Jones"), in view of Bird et al, U.S. Patent 5,483,263 ("Bird"). The 9 October 2001 Amendment should have stated that Claim 129 is patentable over Jones and Bird for the same reasons as Claim 66. Inasmuch as Claim 130 depends from Claim 129, the 9 October 2001 Amendment should also have stated that Claim 130 is patentable over Jones and Bird on the same basis as Claim 129.

A Supplemental Amendment was submitted 14 November 2001 to correct several errors in Claims 1, 56, 57, and 127. The 15 January 2002 Office Action does not indicate that the 14 November 2001 Amendment has been considered and entered. In the event that the 14 November 2001 Amendment has not yet reached the Examiner's file for the present application, enclosed is a copy of the 14 November 2001 Amendment.

Further enclosed is a copy of the return acknowledgement postcard that accompanied the 14 November 2001 Amendment. As is evident from the postcard copy, the acknowledgement postcard bears the PTO's date stamp of 14 November 2001, thereby indicating that the PTO did receive the 14 November 2001 Amendment. If the 14 November 2001 Amendment has not yet been considered and entered, the 14 November 2001 Amendment should now be considered and entered.

In a voicemail on approximately 23 January 2002, Applicants' attorney informed the Examiner that different parts of the 15 January 2002 Office Action treated Claims 127 and 128 in an inconsistent manner as to whether they were rejected or allowed/allowable. Based on the tenor of the 15 January 2002 Office Action, Applicants' attorney informed the Examiner that it appeared that (a) the reference on page 2 to Claim 128 as being rejected under 35 USC 103(a) should be deleted and (b) the references on page 7 to Claims 127 and

LAW OFFICES OF
SKJERVEN MORRILL
MacPHERSON LLP

25 METRO DRIVE
SUITE 700
SAN JOSE, CA 95110
(408) 453-9200
FAX (408) 453-7979

128 in the reasons for rejecting certain claims should be deleted. In a voicemail the next day, the Examiner confirmed that the 15 January 2002 Office Action should be corrected in this way.

Turning now to the present amendment, the claims have been revised in several aspects. Claim 66, 104, 107, and 129 have been amended. The revision made in the 9 October 2001 Amendment to Claim 98 failed to take into account the fact that the dependency of Claim 98 was changed from Claim 96 to Claim 97 in the prior Amendment submitted 4 May 2000. Accordingly, the revision made in the 9 October 2001 Amendment to Claim 98 has been cancelled and replaced with a new revision that takes the claim dependency change into account. Claims 106 and 146 - 154 have been cancelled. Claims 155 - 161 have been added. As a result, Claims 1 - 4, 6 - 40, 42, 44, 46, 47, 49 - 52, 54 - 59, 66 - 105, 107 - 145, and 155 - 161 are now pending.

Claims 66 - 81, 84 - 87, 93 - 97, 124, 129, and 130 have been rejected under 35 USC 103(a) as obvious based on Jones in view of Bird. Claims 82, 83, and 88 - 92 have been rejected under 35 USC 103(a) as obvious based on Jones in view of Bird and Nakamoto, U.S. Patent 6,031,328. Claims 115 - 123 have been rejected under 35 USC 103(a) as obvious based on Jones in view of Bird and Curtin et al, U.S. Patent 5,686,790. Claim 98 has been rejected under 35 USC 103(a) as obvious based on Jones in view of Bird and Waters et al, U.S. Patent 4,596,446. These rejections are respectfully traversed in view of the amendments to the claims.

The Examiner has indicated that Claims 106 - 114 would be allowable if rewritten in independent form. Independent structure Claim 66 has been rewritten to constitute dependent Claim 106 rewritten in independent form. Hence, Claim 66 should now be allowable. Claims 67 - 98 and 115 - 124 all depend (directly or indirectly) from Claim 66. Consequently, dependent Claims 67 - 98 and 115 - 124 should also now be allowable.

Inasmuch as independent Claim 66 now constitutes dependent Claim 106 rewritten in independent form, Claim 106 has been cancelled. Dependent Claim 107 has been amended to depend from Claim 66. As a result, Claims 107 - 114 all now depend (directly or indirectly) from Claim 66. Since Claim 66 should now be allowable, Claims 107 - 114 should likewise be allowable.

The Examiner has indicated that Claims 99 - 105 would be allowable if rewritten in independent form. In this regard, Claims 99 - 105 all depend (directly or indirectly) from Claim 66. With Claim 66 now being allowable, dependent Claims 99 - 105 should be allowable in their present form. The net result is that all of Claims 67 - 105 and 107 - 124 which depend from Claim 66 should be allowable.

Also, the full subject matter of dependent Claim 99, as it existed immediately before the present amendment, has been presented in independent form as new Claim 155. In this regard, the further limitations of dependent Claims 96 and 97 are not explicitly recited in Claim 155 because those limitations inherently arise from the recitation in Claim 155 that the liquid-crystal material comprises host cholesteric liquid crystal and guest black dichroic dye. Since Claim 99 has been indicated as being allowable if rewritten in independent form, Claim 155 should be allowable.

New Claims 156 - 161 all depend (directly or indirectly) from Claim 155 and respectively repeat the further limitations of Claims 100 - 105. Inasmuch as (a) Claim 155 should now be allowable and (b) Claims 100 - 105 were indicated as being allowable if rewritten in independent form, Claims 156 - 161 should also be allowable.

Independent method Claim 129 was the method equivalent of the previous version of structure Claim 66. Analogous to Claim 66, method Claim 129 has been amended to include the further limitation of Claim 106. Accordingly, Claim 129 should now be allowable. The same applies to Claim 130 since it depends from Claim 129.

Claims 139 - 145 have been rejected under 35 USC 103(a) as obvious based on Jones. This rejection is respectfully traversed.

As a preliminary matter, Applicants' attorney believes that the Examiner has misstated what the Examiner intended to say about certain portions of Jones in connection with Claims 139 - 145. On page 12 of the Office Action, the Examiner has referred parenthetically to col. 3, lines 9 - 28, of Jones in stating that Jones teaches a backlit display which includes "a switching means for switching each segment synchronously with the pulsed backlighting such that each segment is in its substantially transparent state when the source of pulsed backlight is not illuminating such portion of the imaging cell". This is basically the opposite of what Jones actually discloses at col. 3, lines 9 - 28.

More particularly, Jones discloses at col. 3, lines 8 - 28, a backlit display that includes "switching means for switching each segment synchronously with the pulsed backlighting, such that each segment is in its substantially transparent state when the source of pulsed backlighting is illuminating the portion of the imaging cell with which the segment is associated and is in its strongly light absorbing state when the source of pulsed backlighting is not illuminating such portion of the imaging cell". Each segment of this backlit display is thus in its substantially transparent state when the source of pulsed backlighting is illuminating the indicated portion of the imaging cell rather than, as the Examiner has stated, in its substantially transparent state when the pulsed-backlighting source is not illuminating that portion of the imaging cell. Accordingly, Applicants' attorney believes that the Examiner intended to state something to the effect that Jones's backlit display includes a switching means for switching each segment synchronously with the pulsed backlighting such that each segment is in its substantially transparent state when the backlighting source is illuminating the associated portion of the imaging cell and is in its substantially absorbing state when the backlighting source is not illuminating that portion of the imaging cell¹.

Independent Claim 139, which largely constitutes original dependent Claim 7 rewritten in independent form, recites:

139. A display comprising:

an image-producing flat-panel component having a multiplicity of imaging lines for producing an image, each imaging line being selectively activated and regularly updated to provide light that produces part of the image; and

a set of shutter strips, each (a) associated with at least one of the imaging lines, (b) situated in front of each so-associated imaging line outside the image-producing component, and (c) being switched during operation of the display between a light-transmissive state and a light-absorptive state such that each shutter strip is in its light-transmissive state largely while each imaging line associated with that strip is activated and providing light for creating the image and such that, during operation of the display, each shutter strip is also in its light-transmissive state largely when each activated imaging line associated with that strip is essentially fully black. *also*

¹ The same error appears to occur at three other places in the Office Action, specifically in the paragraph bridging pages 2 and 3, in the paragraph bridging pages 13 and 14, and in the paragraph bridging pages 18 and 19.

For an imaging line that is activated, an important feature of Claim 139 is that each shutter strip is in its light-transmissive state when each activated imaging line associated with that shutter strip is essentially fully black.

With apparent reference to Claim 139, the Examiner parenthetically cites col. 4, lines 54 - 59, of Jones in alleging at page 13 of the Office Action that Jones “teaches a shutter strip/segment in its light-transmissive state when the activated image line/cell associated with that strip is dark”. This is incorrect.

Firstly, the Examiner appears to be mixing up different displays disclosed by Jones. The display dealt with at col. 4, lines 54 - 59, of Jones is the projection display of Figs. 1a and 1b. The display dealt with at col. 3, lines 8 - 28, of Jones is the backlit display of Fig. 10b. These two displays operate in materially different ways.

Secondly, the projection display of Figs. 1a and 1b, i.e., the display dealt with at col. 4, lines 54 - 59, of Jones has a non-segmented screen and no shutter. Contrary to what the Examiner appears to allege on page 13 of the Office Action, Jones does not disclose or teach at col. 4, lines 54 - 59, a shutter strip/segment that is in its light transmissive state when an activated imaging line/cell associated with that strip is dark.

The Examiner later states at pages 17 and 18 of the Office Action that:

As to newly presented claim 139, applicant argues that Examiner is incorrect in citing Jones as teaching a shutter strip/segment in its light-transmissive state when the activated image line/cell associated with that strip is dark. Applicant goes on to argue that Jones does not disclose the limitation of claim 139 that the shutter strip be in its light-transmissive state largely when each activated imaging line associated with that strip is essentially fully black. This assertion by applicant is not persuasive because Figure 1a in Jones clearly teaches a front layer 3a which is switchable between a strongly light scattering state and a substantially transparent state (see figures 1a & 1b) wherein the rear layer 3b is dark and light absorbent (column 4, lines 35-42). The process exhibited here clearly indicates the inherency of a shutter mechanism wherein an image having enhanced contrast has a screen which switches between a bright, image-presenting state and a dark, image-less state (see Abstract). Moreover, Jones clearly gives the suggestion of alternatively using a shutter which switches between a substantially transparent state and a dark, light absorbing state in place of a conventional screen.

Thus, a clear reading of Jones would clarify applicant's confusion on this point (see Abstract).

As mentioned above, the display in Figs. 1a and 1b of Jones is a projection display that has a non-segmented screen and no shutter. The Examiner's allegation that "The process exhibited here", i.e., the projection of Figs. 1a and 1b of Jones, "clearly indicates the inherency of a shutter mechanism wherein an image having enhanced contrast has a screen which switches between a bright, image-presenting state, and a dark, image-less state" is incorrect. Because front layer 3a in the programmable display of Figs. 1a and 1b switches from a light-scattering state when an image is projected onto layer 3a to a light-transparent when no image is being projected onto layer 3a, there is no need for the display of Figs. 1a and 1b to have a shutter in front of layer 3a.

As far as Applicants' attorney can determine, placing a shutter in front of layer 3a in the projection display of Figs. 1a and 1b in Jones would serve no useful purpose. Nothing in Jones in any way suggests that a shutter is (inherently) situated in front of, or that it would be desirable to have a shutter situated in front of, layer 3a in the display of Figs. 1a and 1b. It is absolutely not inherent that the display of Figs. 1a and 1b includes such a shutter.

As to the Examiner's parenthetical references to the Abstract of Jones, the Examiner again appears to be mixing up different displays disclosed by Jones. Jones's Abstract consists of two sentences repeated below:

A display presenting an image having enhanced contrast has a screen which switches between a bright, image-presenting state and a dark, image-less state, to minimize glare from ambient light reflections. Alternatively, a shutter which switches between a substantially transparent state and a dark, light absorbing state is placed over a conventional screen.

The abstract of a U.S. patent application briefly summarizes, or is intended to summarize, the invention disclosed in the application. Jones describes a number of different displays that employ various types of switching techniques to improve image contrast. The first sentence of Jones's Abstract covers a display, such as the projection display of Figs. 1a and 1b, in which the display screen itself switches between an image-presenting state and a dark image-less state for improving contrast. Other displays that fall under the first sentence

of Jones's Abstract include the projection displays of Figs. 2a and 2b, Figs. 3a and 3b, Figs. 6a and 6b, Figs. 7a and 7b, and Figs. 8a and 8b².

None of the displays of Figs. 1a and 1b, Figs. 2a and 2b, Figs. 3a and 3b, Figs. 6a and 6b, Figs. 7a and 7b, and Figs. 8a and 8b of Jones is disclosed as having a shutter divided into separate switching segments. Nor is it inherent that any of the displays of Figs. 1a and 1b, Figs. 2a and 2b, Figs. 3a and 3b, Figs. 6a and 6b, Figs. 7a and 7b, and Figs. 8a and 8b have such a segmented shutter. Consequently, the first sentence of Jones's Abstract is not directed to any display having a segmented shutter.

The second sentence of Jones's Abstract covers displays, such as the displays of Figs. 10a and 12, in which a non-segmented shutter is placed over a conventional screen. The shutter switches between light-transparent and light-absorbing states^{3,4}.

Importantly, Jones's Abstract employs the word "Alternatively" to begin the second sentence of the Abstract. The use of "Alternatively" at this point in the Abstract indicates that Jones intends the second sentence of the Abstract to cover displays that achieve contrast enhancement by means different from those employed to achieve contrast enhancement in the displays covered by the first sentence of the Abstract. Furthermore, the Abstract does not mention shutter segmentation, such as that present in the display's of Figs. 9, 10b, and 11 of

² Figs. 4 and 5 of Jones illustrate two projection displays that have segmented screens. The segments of each of the segmented screens switch between an image-presenting state and a dark image-less state to improve the contrast. Due to the screen segmentation, neither of the displays of Figs. 4 and 5 is strictly covered by either of the two sentences in Jones's Abstract. However, the switching of the segments of the screens of each of the displays of Figs. 4 and 5 is, in some sense, an extension of the full screen switching that occurs in the displays of Figs. 1a and 1b, Figs. 2a and 2b, Figs. 3a and 3b, Figs. 6a and 6b, Figs. 7a and 7b, and Figs. 8a and 8b. Hence, the displays of Figs. 4 and 5 might be viewed as falling under a screen-segmentation extension of the first sentence of Jones's Abstract.

³ Front layer 7a in the display of Figs. 2a and 2b of Jones switches between light-transparent and light-absorbing states. Although not stated in Jones, front layer 7a might be viewed as a non-segmented shutter placed over a conventional screen formed with back layer 7b. In that case, the display in Figs. 2a and 2b might be viewed as falling under the second sentence of Jones's Abstract.

⁴ Figs. 9, 10b, and 11 of Jones illustrate three displays in which a segmented shutter is placed over conventional screen. The segments of each of the segmented shutters switch between a light-transparent state and a dark light-absorbing state for improving the image contrast. Due to the shutter segmentation, none of the displays of Figs. 9, 10b, and 11 is strictly covered by either sentence in Jones's abstract. However, the switching of the shutter segments in each of the displays of Figs. 9, 10b, and 11 is, in some sense, an extension of the full shutter switching that occurs in the displays of Figs. 10a and 12. Consequently, the displays of Figs. 9, 10a, and 11 might be viewed as falling under a segmented-shutter extension of the second sentence of Jones's Abstract.

Jones, in which the shutter segments are separately switched between light-transparent states and dark light-absorbing states. Consequently, the second sentence of Jones' Abstract does not in any way disclose, indicate, or suggest that a segmented shutter is present over a screen formed with layers 3a and 3b in the display of Figs. 1a and 1b of Jones.

For the preceding reasons, Jones does not disclose, suggest, or otherwise teach the limitation of Claim 139 that a shutter strip is in its light-transmissive state when an activated imaging line associated with that strip is in its light-absorptive state and thus is dark.

Claim 139 is patentable over Jones.

Claim 140 depends from Claim 139. Consequently, Claim 140 is patentable over Jones for the same reasons as Claim 139.

Independent Claim 141, which largely constitutes original dependent Claim 8 rewritten in independent form, recites:

141. A display comprising:

an image-producing flat-panel component having a multiplicity of imaging lines for producing an image, each imaging line being selectively activated and regularly updated to provide light that produces part of the image; and

a set of shutter strips, each (a) associated with at least one of the imaging lines, (b) situated in front of each so-associated imaging line outside the image-producing component, and (c) being switched during operation of the display between a light-transmissive state and a light-absorptive state such that each shutter strip is in its light-transmissive state largely while each imaging line associated with that strip is activated and providing light for creating the image and such that, during operation of the display, a variable selectable plurality of consecutive ones of the shutter strips are simultaneously in their light-transmissive states when at least one other of the shutter strips is in its light-absorptive state.

An important feature of Claim 141 is that, during display operation, a variably selectable plurality of consecutive shutter strips are simultaneously in their light-transmissive states when at least one (other) shutter strip is in its light-absorptive state.

With apparent reference to Claim 141, the Examiner parenthetically cites col. 3, lines 14 - 28, of Jones in stating at page 13 of the Office Action that Jones "teaches a shutter in front of the imaging cell comprising a plurality of segments being switchable synchronously

between a transparent state and a light absorbing state". The cited portion of Jones seems to generally describe what the Examiner says, where "synchronously" means "synchronously with the pulsed backlighting". However, this portion of Jones does not disclose the requirement of Claim 141 that a variably selectable plurality of consecutive shutter strips be simultaneously in their light-transmissive states when at least one other shutter strip is in its light-absorptive state.

Later, at page 18 of the Office Action, the Examiner states in regard to Claim 141 that:

Jones et al teaches a shutter in front of the imaging cell comprising a plurality of segments being switchable synchronously between a transparent state and a light absorbing state (column 3, lines 14-28). Furthermore, Jones et al teaches a backlit display, an imaging cell on which an image is formed, a source of pulsed backlighting which sequentially illuminates portions of the imaging cell, a shutter in front of the imaging cell, comprising a plurality of segments, each segment being switchable between a substantially transparent state and a strongly light absorbing state and being associated with a portion of the imaging cell which is being illuminated in sequence, and a switching means for switching each segment synchronously with the pulsed backlighting such that each segment is in its substantially transparent state when the source of pulsed backlight is not illuminating such portion of the imaging cell (column 3, lines 9-28). It is inherent that the combination of the switching mechanism and the pulsed backlighting help produce the multiplicity of the selection.

Subject to the above-mentioned correction to the Examiner's description of what is described at col. 3, lines 8 - 28, of Jones, the Examiner's description of the preceding portion of Jones is generally correct. However, this portion of Jones does not teach the requirement of Claim 141 that a variably selectable plurality of consecutive shutter strips be simultaneously in that light-transmissive states when at least one other shutter strip is in its light-absorptive state.

The Examiner continues with respect to Claim 141 by stating on pages 18 and 19 of the Office Action that:

Furthermore, Jones et al teaches a CRT in Figure 9. The CRT's do simultaneously display an image line since CRT's scan each line, and flat-panel displays such as plasma and electroluminescent displays do simultaneously display an image line because the column drivers on a flat panel display latch one row of image data at the same time so that when the row strobes, the whole line or row turns on simultaneously or at once. Furthermore, Jones et al's CRT in Figure 9 is modified, and suggest that those skilled in the art will understand

that this invention can be used with other self-luminous displays such as plasma and electroluminescent displays (see Jones at column 7, lines 5-9).

Once again, even though the Examiner's description of the cited portion of Jones appears generally correct, that portion of Jones does not teach the requirement of Claim 141 that a variably selectable plurality of consecutive shutter strips be simultaneously in their light-transmissive states when at least one shutter strip is in its light-absorptive state. The simultaneous display of an entire imaging line in a display such as a CRT display is not the same as having a plurality of consecutive shutter strips be simultaneously in their light-transmissive states when at least one other shutter strip is in its light-absorptive state.

As far as Applicants' attorney can determine, nowhere does Jones disclose, suggest, or in any way teach the requirement of Claim 141 that a variably selectable plurality of consecutive shutter strips be simultaneously in their light-transmissive states when at least one other shutter strip is in its light-absorptive state. Hence, Claim 141 is patentable over Jones.

Claims 142 and 143 each depend from Claim 141. Consequently, Claims 142 and 143 are patentable over Jones for the same reasons as Claim 141.

In addition, Claim 142 recites:

142. A display as in Claim 141 wherein the selectable plurality of shutter strips are simultaneously in their light-transmissive states when a variably selectable one of the imaging lines associated with that plurality of shutter strips is activated and each other imaging line associated with that plurality of shutter strips is deactivated.

Jones does not disclose or suggest the preceding further limitation of Claim 142. This provides a separate basis for allowing Claim 142 over Jones.

Independent Claim 144, which largely constitutes original dependent Claim 15 rewritten in independent form, recites:

144. A display comprising:

an image-producing flat-panel component having a multiplicity of imaging lines for producing an image, each imaging line being selectively activated and regularly updated to provide light that produces part of the image, the imaging lines being selectively activated in response to a multiplicity of selection signals such that each imaging line becomes (a)

activated when a different corresponding one of the selection signals goes to a selection condition and (b) deactivated when the corresponding selection signal leaves its selection condition, no more than part of the selection signals being simultaneously at their selection conditions at any time during normal operation of the display; and

a set of shutter strips, each (a) associated with at least one of the imaging lines, (b) situated in front of each so-associated imaging line outside the image-producing component, and (c) being switched during operation of the display between a light-transmissive state and a light-absorptive state such that each shutter strip is in its light-transmissive state at least partly while each imaging line associated with that strip is providing light for creating the image, the shutter strips switching between their light-transmissive and light-absorptive states largely in response to the selection signals or/and at least one selection generation signal utilized in generating the selection signals such that each shutter strip is in its light-transmissive state at least largely while the selection signal for each imaging line associated with that strip is at that selection signal's selection condition and such that one of the shutter strips is in its light-transmissive state while the selection signal for each imaging line associated with that shutter strip is not at that selection signal's selection condition.

An important feature of Claim 144 is that one shutter strip is in its light-transmissive state while the selection signal for each imaging line associated with that shutter strip is not at the selection condition for that selection signal.

The Examiner has not pointed to any part of Jones as disclosing or in any way suggesting the preceding limitation of Claim 144. Hence, no basis has been presented for rejecting Claim 144 as obvious in view of Jones.

A shutter strip is in its light-transmissive state when the selection signal for at least one imaging line associated with that shutter strip is at that selection signal's condition. As far as Applicants' attorney determine, Jones does not disclose or suggest the limitation of Claim 144 that one shutter strip be in its light-transmissive state while the selection signal for each imaging line associated with that strip is not at that selection signal's selection condition. Accordingly, Claim 144 is patentable over Jones.

Claim 145 depends from Claim 144 and is patentable over Jones on the same basis as Claim 144.

The allowance of Claims 1 - 4, 6 - 40, 42, 44, 46, 47, 49 - 52, 54 - 59, 125 - 128, and 131 - 138 is noted.

In short, Claims 67 - 105, 107 - 124, 129, and 130 have been amended to be patentable over the applied art. Claim 139 - 145 have been shown to be patentable over the applied art. Claims 155 - 161 are likewise patentable over the applied art. Accordingly, Claims 67 - 105, 107 - 124, 129, 130, 139 - 145, and 155 - 161 should be allowed along with already allowed Claim 1 - 4, 6 - 40, 42, 44, 46, 47, 49 - 52, 54 - 59, 125 - 128, and 131 - 136 so that the application may proceed to issue.

Please telephone Applicants' attorney at 408-453-9200, ext. 1371, if there are any questions.

EXPRESS MAIL LABEL NO:

EL 901 565 207 US

Respectfully submitted,



Ronald J. Meetin
Attorney for Applicants
Reg. No. 29,089

LAW OFFICES OF
SKJERVEN MORRILL
MacPHERSON LLP

25 METRO DRIVE
SUITE 700
SAN JOSE, CA 95110
(408) 453-9200
FAX (408) 453-7979